frequently in Oregon or the British possessions. Had it been common, I should have seen it in the southern part of the State of California." T. Bridges—*Proc. Zool. Soc.* Jan. 12, 1858.

Some Observations on the mode of life of a Fossorial Hymenopterous Insect, Cerceris arenarius. By M. H. Lucas.

The mode of life of several species of the genus *Cerceris* has already been made known; but I am not aware that the observations which I was enabled to make last summer upon the *Cerceris arenarius,* Fab., have yet been signalized by authors. On the 16th July of last year, during very hot and stormy weather, I was at Fontenay-aux-Roses, upon a rocky soil, completely exposed to the south. Upon this ground, covered with a thick layer of fine sand, I observed, in a very circumscribed space, twelve or fifteen cylindrical holes, the margins of which were covered with fresh debris, newly moved, and composed of earth, sand, and plaster; above and in the vicinity of these burrows, of which the depth was nearly three centimetres, hovered some Hymenopterous insects, which I recognized as belonging to the genus *Cerceris,* and as being the *C. arenarius,* Fab. Curious to ascertain the proceedings of these industrious insects, I set myself to observe them, and the following are the results to which this study led me.

In the vicinity of these nests, which there is nothing to protect, I observed individuals of *Cerceris* flying about over the habitations, but did not notice any one that ventured to penetrate into them. These individuals, which I ascertained to be males, placed themselves quite close to the aperture of these dwellings, and waited patiently until their inhabitants issued from them. I also noticed that some of these subterranean conduits were occupied by their inhabitants, for from time to time I saw a *Cerceris arenarius* come to the opening, push away the debris, which might have inconvenienced it, with its broad head, protrude a portion of its thorax, survey the neighbourhood, and agitate its antennæ in all directions.

This manœuvre was continued for a considerable time, and during the agitation into which the inhabitants of these retreats threw themselves, the male held himself in observation, and appeared to be watching the issue of these insects. In fact, as soon as they quitted their abodes, they were pursued by the males, and both were lost in the distance. Not understanding the movements of the males, I took some individuals in their nests, and found that the true proprietors of these burrows were females.

Frequently I saw females flying over the holes, and whilst they were in search of their own habitations, the males threw themselves upon them; but the females, not yielding to their solicitations, got rid of them by pushing them away with their hind-feet, and threw them on the sand, where they fell more or less stupefied.

I also observed that the females, on returning to their habitations, held under their sternum, by means of their feet, some bodies of considerable size, which they buried with great precipitation in

their burrows. Wishing to ascertain the prey with which these careful females furnished their larvæ, I captured a considerable number of them, and found that they nourish their progeny with beetles belonging to the family *Curculionidæ* and to the genus *Otiorhynchus*. I also ascertained that the *Cerceris* varied in the selection of species, for I counted four belonging to this generic group, namely *Otiorhynchus scabrosus, sulcatus, raucus,* and *nubilus*; they also furnished me with a *Phytonomus punctatus* and several individuals of *Bromius vitis*. Is it because the species of this latter genus resemble *Otiorhynchi* in their form that this Curculionicidal *Cerceris* furnishes its larvæ with them?

It is only the females that are charged with the care of provisioning the larvæ, and it is only the females that devote themselves to the construction of the burrows destined to protect their progeny. As to the males, I fancy they are vagrants, and that their principal functions consist in the propagation of their species.

All day, and as long as the sun is above the horizon, the females are busy in bringing nourishment to their larvæ, and nothing is more curious than to see how great is their activity, and with what earnestness they perform these operations. Their burrows, which are always cylindrical, are not straight, but usually form a more or less distinct curve: this is easily proved; for if a straw be introduced into these burrows, the aperture of which is about 5 millimetres in diameter, it is very dificult to pass it to the bottom, and then it is felt that the straw changes its originally straight direction in a well-marked curve.

If it be curious to observe the maternal zeal with which these females provision their larvæ, it is no less interesting to witness the activity which they display in the construction, and especially in the repair of their habitations.

Into these holes the provident female carries successively from fifteen to twenty *Otiorhynchi*; and when we observe these beetles, they are found to be in a very decidedly lethargic state. The sting applied to these *Otiorhynchi* by the female *Cerceris* no doubt benumbs the vital principle; and although, at the first glance, they do not seem to have more than a few moments to live, they probably remain alive for several months, that is to say, until the larvæ, for whose nourishment they are destined, have devoured their principal organs. What seems to support the opinion which I here put forward is, that on the 22nd of September I had still some living specimens of *Otiorhynchus scabrosus*, the species most sought for by this Fossorial Hymenopterous insect.—*Comptes Rendus*, 22nd February, 1858, p. 414.

On a new species of Hæmatozoon of the genus Filaria, *observed in the Heart of a Seal* (Phoca vitulina, *Linn.*). By M. Joly.

In dissecting the heart of a Seal (*Phoca vitulina*) the author found several female Nematoid worms, 15 to 20 centimetres in length, and 0·80 to 1 millimetre in diameter. Four of them were fixed in the